FILE COPY

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

SUMMARY OF INSECT SURVEY MADE IN CONNECTION WITH HEPTANE PRODUCTION EXPERIMENT IN JEFFREY PINE NEAR HARVEY RANGER STATION, LASSEN NATIONAL FOREST

by

National FS Library
USDA Forest Service
MAR 21 2014
240 W Prospect Rd
Fort Collins, CO 80526

J. M. MILLER
Senior Entomologist

SB
763
.C2 L3
1928

Forest Insect Laboratory
Stanford University, California
November 20 1928

U. S. GOVERNMENT PRINTING OFFICE: 1928 J 76133

SUMMARY OF INSECT SURVEY MADE IN CONNECTION WITH HEPTANE PRODUCTION EXPERIMENT IN JEFFREY PINE NEAR HARVEY RANGER STATION, LASSEN NATIONAL FOREST

A turpentining experiment in Jeffrey pine was started near the Harvey Valley Ranger Station in 1926 by the California Forest Experiment Station. The primary object of this project was the production of heptane. The California Chemical Company leased an area containing a high percentage of Jeffrey pine, on which production was tested out on a small scale by the commercial methods of turpentining. In addition Mr. N.C. Tihomiroff, under the direction of Mr. Hill, carried on an experimental study of methods on a small area adjoining that used by the Commercial company. On both the experimental and commercial areas Mr. Tihomiroff noted a few trees attacked by bark-beetles during the course of the 1927 season.

The same studies were continued during the season of 1928. Mr. W.D. Bedard, a student of forest entomology at Syracuse, was assigned to the job of continuing the records on the experimental work. Through an agreement and financial arrangement with the Bureau of Entomology station at Palo Alto, part of Bedard's time was made available for entomological studies in connection with the project. It was planned to keep sufficient records to determine whether or not the facing of the trees to produce resin flow would result in a perceptible increase of barkbeetle attacks within the area.

Insect Hosts Involved

Both yellow pine and Jeffrey pine occur in mixture in a mature stand on this area, the latter predominating. In yellow pine the Western pine beetle (Dendroctonus brevicomis) is the primary enemy. This insect does not attack the Jeffrey pine. In Jeffrey pine Dendroctonus jeffreyi is the primary enemy, and this in turn does not attack yellow pine. The turpentine beetle, Dendroctonus valens, and two species of Ips beetles are common to both hosts. These insects were all common on the area before the experiments were started.

Methods Used in Insect Surveys

In June 1928 plans were outlined by the writer for a survey and marking of insect-killed trees on both the turpentine area and an adjoining check area. This survey was completed on August 20 by Mr. Bedard.

Sections 23 and 24, T 33 N, R 8 E, were selected as the basis for this study. Practically all of Section 24 was covered by the commercial turpentining operations in 1927 and 1928. About 80 acres in the NE¼ of Sec. 23 were used for the experimental work carried on by Mr. Tihomiroff. On the balance of this section no trees were faced, and it was cruised as a check area.

Both sections were cruised by the use of five-chain strips run by compass line, covering 100 per cent of the area.

All trees killed by insects during the seasons of 1926 and 1927 were marked, numbered and mapped. Trees attacked by insects during the season of 1928 were also included, but only a limited percentage of the attack of this year could be located at the time of the cruise. Individual records of the d.b.h. log lengths and primary insects were kept for all trees marked.

Summary of Data

JEFFREY PINE KILLED BY DENDROCTONUS JEFFREYI

	Section 23		Section 24	
	No. Trees	Volume	No. Trees	Volume
1926 Loss (J)	12	16,510	25	40,140
1927 Loss (K)	26	29,620	39	72,200
1928 Loss (L) (incomplete)	2	5,690	11	19,440

YELLOW PINE KILLED BY DENDROCTONUS BREVICOMIS

	Section 23		Section 24	
	No. Trees	Volume	No. Trees	Volume
1926 Loss (J)	15	18,410	8	11,280
1927 Loss (K)	24	34,530	14	20,560
1928 Loss (L) (incomplete)	3	5,180	2	2,920

These records show that on both the turpentine and the check areas the infestation of 1927 was nearly double that of 1926. As only a few of the trees attacked in 1928 could be located at the time of the cruise, it could not be determined whether a further increase occurred this season. This point can be determined only by a similar cruise to be made during the season of 1929, when all the 1928-attacked trees can be distinguished by their faded foliage.

Toward the close of the 1928 season the men engaged on the commercial operation of the California Chemical Company complained that many of the faced trees from which they were collecting were being attacked by barkbeetles. Late in September Mr. Bedard and the man in charge of the operation made a check of the faced trees on the commercial area and found that about four per cent of them were attacked.

This would indicate a considerable increase of the Jeffrey beetle infestation in 1928, though this point cannot be accurately determined until 1929. If an increase is found to have occurred, it may indicate a general augmentation throughout the region or merely a local concentration within the commercial area.

Further Work Necessary to Complete Study

A similar cruise should be made in 1929 to record accurately the extent of the 192[illegible] infestation, both upon the turpentine and the check sections. After these data have been summarized it will be possible to determine whether it will be desirable to continue records any further.

Senior Entomologist.

Forest Insect Laboratory,
Palo Alto, Calif.,
November 20, 1928.

CRUISING MAP

Section 23, 24

T. 33N - R. 8E

Scale
1/16 1/8 1/4 mi

- x - Pinus jeffreyi
- • - Pinus ponderosa
- Road
- ⊗ - Jeffrey Pine with broad records

FOREST AREA

MEADOW

MEADOW

23

24

To Harvey Mt. Lookout

To Cowe Tatuans

Burgess Springs